BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of	)	PUC Docket 03-0371
	)	
PUBLIC UTILITIES COMMISSION	)	
	)	
Instituting a Proceeding to	)	
Investigating Distributed Generation	)	
in Hawaii	)	
	)	

LIFE OF THE LAND'S

INFORMATION REQUESTS TO ALL PARTIES

&

CERTIFICATE OF SERVICE

HENRY Q CURTIS
VICE PRESIDENT FOR CONSUMER ISSUES
LIFE OF THE LAND

76 North King Street, Suite 203
Honolulu, HI 96817
phone: 808-533-3454
henry@lifeoftheland.net

In the Matter of the Application of	)	PUC Docket 03-0371
	)	
PUBLIC UTILITIES COMMISSION	)	LOL's Information Requests
	)	
Instituting a Proceeding to	)	
Investigating Distributed Generation	)	
in Hawaii	)	
	)	

May 24, 2004

Aloha Intervenors,

For each response to an Information Request, the Responding Party should identify the person who is responsible for preparing the response as well as the witnesses who will be responsible for sponsoring the response should their be an evidentiary hearing; When an information request makes reference to specific documentation used by a Party to support its response, it is not intended that the response be limited to just the specific document referenced in the request. The response should include any non-privileged memoranda, internal or external studies, assumptions, instructions, draft reports, or any other relevant authoritative supporting documents which the Party used.

Should a Responding Party claim that any information is not discoverable for any reason: (1) State all claimed privileges and objections to disclosure; (2) State all facts and reasons supporting each claimed privilege and objection; (3) State under what conditions the Responding Party is willing to permit disclosure to the Other parties (e.g., protective agreement, review at business office, etc.); (4) If the Responding Party treats the Other Parties differently, provide all documentation, files, reports, memos, etc. that suggest, encourage, permit, or allow the Responding Party to treat

Other Parties differently; and (5) If a Party claims that a written document or electronic file is not discoverable, besides complying with the above, identify each document or electronic file, or portions thereof, that the Party claims are privileged or will not be disclosed, including the title or subject matter, the date, the author (s) and the addressee (s).

Information Requests (IRs) for the CA

LOL-SOP-IR-1: (a) Does the CA believe that a fair market for all DG players can exist if the utility participates directly in the DG market, without establishing any firewalls between its DG sector and other sectors of the company? (b) Does the CA believe that it is in the economic self-interest of the utility to use its resources to delay, defer and/or block independent companies from establishing markets in Hawaii?

LOL-SOP-IR-2: (a) Is the CA aware of any studies or analysis that would indicate that standardized interconnection agreements and power purchase agreements lead to savings in time and/or money? (b) If so, please name all studies, reports, workpapers and analysis that the CA has reviewed to indicate this.

LOL-SOP-IR-3: Does the CA believe that the prices associated with generation, transmission & distribution, and ancillary functions should be unbundled so as to send correct price signals to the market?

LOL-SOP-IR-4: (a) Does the CA believe that the current IRP Framework would allow for modeling of multiple small generators? (b) If the benefits/costs of DG systems are site-specific, and IRP is a general plan that does not get down to the level of detail to include site specific data, how can DG be evaluated in the IRP process? (c) How does

the CA believe that the role on micro- and mini- on-site generators should be handled within an IRP Framework?; (d) Are construction and operation costs for DG/CHP similar for utilities and non-utilities?

LOL-SOP-IR-5: If the future consists of fossil fuel power plants with higher efficiencies and economies with higher load demand, the amount of foreign fossil fuel needed might increase. Does the CA believe that this would satisfy the state directive to decrease the use of fossil fuels?

LOL-SOP-IR-6: (a) Does the CA support government-to-government wheeling? (b) if so, under what conditions?

LOL-SOP-IR-7: Will DG affect the amount of spinning reserve required?

LOL-SOP-IR-8: Maui County proposed a Virtual Power Plant (VPP) which refers to a network of grid-connected, utility-controlled, economic-dispatchable, peak load providing generators. To what level of expertise has the CA evaluated the VPP option?

LOL-SOP-IR-9: Can DG be used for customers usage except for the peak periods, when the electricity from the DG facility could be fed into the grid to alleviate peak demands?

LOL-SOP-IR-10: How does the CA believe that positive externalities associated with renewable energy DG (hedging against fossil fuel price volatility; hedging against fossil fuel price spikes; reduced environmental compliance risk; security risks) should be accounted for?

LOL-SOP-IR-11: Can wind provide non-time-sensitive power to specific customers (for example, utility will sell electricity for water pumping when available), and thus sell time-uncertain green-electricity to customers desiring such?

LOL-SOP-IR-12: Should all customers pay to upgrade the T&D grid for the benefit of those customers requiring higher levels of reliability?

LOL-SOP-IR-13: (a) Does the CA use any probability analysis, confidendence interval estimates, correlation analysis, regression modeling or other statistical analysis? (b) Does this include analysis of the need for standby charges, spinning reserves, transmission line redundancy, distribution line redundancy, and multiple simultaneous DG equipment failures? (c) Please explain any type of probability analysis the CA is aware of to evaluate the likelihood of multiple DG systems failing simultaneously; (d) Contingency planning calls for the utility to be able to have one generator down for service while a second one fails. Contingency planning calls for the utility to be able to have one transmission line to be down when another one fails. Should the utility have a higher standard for distributed generation, that is, the utility must plan for all generators to fail simultaneously? (e) Should utility upgrades occur where (1) the load is higher; (2) where the is a history of failures; or (3) where there is a higher probability of future failure.

LOL-SOP-IR-14: (a) Should comparisons of alternative technologies include the multiplier effect, job creation, economic growth, fuel volatility and security? (b) For each of the following, please explain how the CA analyses, incorporates and/or utilizes it in evaluating alternative energy plans and/or DG analysis: (1) job creation; (2) economic growth; (3) the economic multiplier effect; (4) balance of trade issues; (5) export expansion; (6) import substitution; (7) foreign investment; (8) leakage? (c)

Does the CA believe that the following analysis (cited in the CA's SOP) paints a realistic picture?: The "Renewable Energy Resource Assessment and Development Program" (1995) assumed that (1) DG is utility-scaled; (2) financing (and hence construction) is more expensive for non-utilities; and (3) economic metrics (discount rates, economic multiplier, balance of trade) are neutral; and are thus irrelevant to the discussion. (www.hawaii.gov/dbedt/ert/hes3/plan.html) (d) Does "public interest" refer to "ratepayer interest" and/or "stockholder interest" or to some broader interest which is also concerned with jobs, economic prosperity and quality of life issues.

Information Requests (IRs) for DBEDT

LOL-SOP-IR-15: (a) Can a fair market for all DG players exist if the utility participates directly in the DG market, without establishing any firewalls between its DG sector and other sectors of the company? (b) Does DBEDT believe that it is in the economic self-interest of the utility to use its resources to delay, defer and/or block independent companies from establishing markets in Hawaii?

LOL-SOP-IR-16: Is DBEDT aware of any studies or analysis that would indicate that standardized interconnection agreements and power purchase agreements lead to savings in time and/or money. If so, please name all studies, reports, workpapers and analysis that the CA has reviewed to indicate how interconnection agreements are streamlined, less stringent, and/or less timely.

LOL-SOP-IR-17: Should the prices associated with generation, transmission & distribution, and ancillary functions be unbundled so as to send correct price signals to the market

LOL-SOP-IR-18: (a) Does DBEDT believe that the current IRP Framework would allow for modeling of multiple small generators? (b) If the benefits/costs of DG systems are site-specific, and IRP is a general plan that does not get down to the level of detail to include site specific data, how can DG be evaluated in the IRP process: (c) How does the DBEDT believe that the role on micro- and mini- on-site generators should be handled within an IRP Framework? (d) Are construction and operation costs similar for utilities and non-utilities?

LOL-SOP-IR-19: The future could consist of rising energy demand coupled with rising efficiencies for power plants. This could result in either an increase in actual foreign fuel needed. Would this satisfy the state directive to decrease the use of fossil fuels.

LOL-SOP-IR-20: (a) Does DBEDT support government-to-government wheeling? (b) if so, under what conditions?

LOL-SOP-IR-21: The Maui County Virtual Power Plant (VPP) proposal refers to a network of grid-connected, utility-controlled, economic-dispatchable, peak load providing generators. To what level of expertise has the DBEDT evaluated the VPP option.

LOL-SOP-IR-22: Can DG be used for customers usage except for the peak periods, when the electricity from the DG facility is fed into the grid

LOL-SOP-IR-23: How does DBEDT believe that positive externalities associated with renewable energy DG (hedging against fossil fuel price volatility; hedging against fossil

fuel price spikes; reduced environmental compliance risk; security risks) should be accounted for?

LOL-SOP-IR-24: (a) Does DBEDT use any probability analysis, confidendence interval estimates, correlation analysis, regression modeling or other statistical analysis? (b) Does this include analysis of the need for standby charges, spinning reserves, transmission line redundancy, distribution line redundancy, and multiple simultaneous DG equipment failures? (c) Please explain any type of probability analysis DBEDT is aware of to evaluate the likelihood of multiple DG systems failing simultaneously; (d) Contingency planning calls for the utility to be able to have one generator down for service while a second one fails. Contingency planning calls for the utility to be able to have one transmission line to be down when another one fails. Should the utility have a higher standard for distributed generation, that is, the utility must plan for all generators to fail simultaneously? (e) Should utility upgrades occur where (1) the load is higher; (2) where the is a history of failures; or (3) where there is a higher probability of future failure?

LOL-SOP-IR-25: Should comparisons of alternative technologies include the multiplier effect, job creation, economic growth, fuel volatility and security: (b) For each of the following, please explain how DBEDT analyses, incorporates and/or utilizes it in evaluating alternative energy plans and/or DG analysis: (1) job creation; (2) economic growth; (3) the economic multiplier effect; (4) balance of trade issues; (5) export expansion; (6) import substitution; (7) foreign investment; (8) leakage?

LOL-SOP-IR-26: (a) Regarding DBEDT's DG study conducted by Global Energy Partners, please provide a copy of ALL DBEDT/GEP contracts, workpapers, correspondence,

draft reports, analyses, and final reports and any other document(s) associated with this project.

Information Requests (IRs) for HESS

LOL-SOP-IR-27: Can a fair market for all DG players exist if the utility participates directly in the DG market, without establishing any firewalls between its DG sector and other sectors of the company?

LOL-SOP-IR-28: What is the average reliability rate, planned outage rate, scheduled outage rate, unscheduled outage rate, for Hess's generators operating within Hawaii?

LOL-SOP-IR-29: What is the length of time needed to negotiate each interconnection agreement and each power purchase contract between the utility and HESS. Please explain any time differentials in signing ICAs and PPAs with the utility regarding Hess's non-pre-packaged and pre-packaged CHP systems.

LOL-SOP-IR-30: Can HESS units backfeed into the grid to provide emergency power to the grid during critical periods (for example, can a CHP unit installed at a school provide emergency power to the grid when the school is not in session)?

LOL-SOP-IR-31: (a) Are fossil fuel CHP units a transition between the fossil fuel era and the sustainable era? (b) Can HESS CHP units be easily retrofitted with renewable energy based fuel cells (when they become available)?

LOL-SOP-IR-32: What is HESS's guesstimate regarding the heat load of each island that could be provided by through CHP.

LOL-SOP-IR-33: Does HESS support wheeling?

LOL-SOP-IR-34: Should small DG that serve two or more contiguous properties be permitted?

Information Requests (IRs) for HREA

LOL-SOP-IR-35: What amount of backup and emergency generators currently exist in Hawaii?

LOL-SOP-IR-36: (a) What is a reasonable estimate (number of customers, MWh) for the CHP market on each island? (b) What is the maximum upper limit for CHP on each island?

LOL-SOP-IR-37: What percentage of the load can be offset by quantifiable energy conservation measures?

Information Requests (IRs) for JCI

LOL-SOP-IR-38: What amount of backup and emergency generators currently exist in Hawaii?

LOL-SOP-IR-39: (a) What is a reasonable estimate (number of customers, MWh) for the CHP market on each island? (b) What is the maximum upper limit for CHP on each island?

Information Requests (IRs) for Pacific Machinery

LOL-SOP-IR-40: Please give an overview of the proposal to install DG on Lanai.

Information Requests (IRs) for Kauai County

LOL-SOP-IR-41: (a) How much money is exported from the Kauai County each year to buy fossil fuels for electric power production? (b) Utilizing economic multiplier analysis (direct and indirect monetary flows), what would the economic impact be of keeping that money within Kauai County, by purchasing local renewable energy?

LOL-SOP-IR-42: A Virtual Power Plant (VPP) refers to a network of grid-connected, utility-controlled, economic-dispatchable, peak load providing generators. Does the county support the Virtual Power Plant concept?

LOL-SOP-IR-43: Does the county support wheeling?

Information Requests (IRs) for KIUC

LOL-SOP-IR-44: (a) How much money is exported from the Kauai County each year to buy fossil fuels for electric power production? (b) Utilizing economic multiplier analysis (direct and indirect monetary flows), what would the economic impact be of keeping that money within Kauai County, by purchasing local renewable energy? (c) Should KIUC plan for a time when fossil fuels will no longer be used to generate electricity in Hawaii

LOL-SOP-IR-45: A Virtual Power Plant (VPP) refers to a network of grid-connected, utility-controlled, economic-dispatchable, peak load providing generators. Would KIUC support the Virtual Power Plant concept?

LOL-SOP-IR-46: Does KIUC support wheeling?

LOL-SOP-IR-47: Can a fair market for all DG players exist if KIUC participates directly in the DG market, without establishing any firewalls between its DG sector and other sectors of the cooperative?

Information Requests (IRs) for Maui County

LOL-SOP-IR-48: (a) How much money is exported from the Maui County each year to buy fossil fuels for electric power production? (b) Utilizing economic multiplier analysis (direct and indirect monetary flows), what would the economic impact be of keeping that money within Maui County, by purchasing local renewable energy?

LOL-SOP-IR-49: Maui has raised the issue of a Virtual Power Plant in several different venues. The term Virtual Power Plant has been used in several related ways to offset new centralized generation through a network of distributed generation as well as to decrease energy use through energy efficiency. In light of these various definitions of VPP (some of which are summarized below), is Maui glued to the Encorp approach?

> **Encorp's Virtual Power Plant (Backup Generators):** "links together seldom-used standby and emergency backup generators at hospitals, universities, manufacturers, office towers, and other facilities that thereby allow utilities and high-energy users to draw additional power from these on-site sources as needed." The back up generators provide dispatchable power. www.encorp.com The City of Chicago, Siemens Building Technologies Inc. and Encorp Inc have built a 10 MW power plant

"linking scattered backup generators from eight police stations and three senior citizen cooling centers"

Virtual Fuel Cell Power Plant (Micro CHP for Peak Demand): "a series of decentralized residential micro-CHPs using fuel cell technology, installed in multi-family- houses, small enterprises, public facilities etc., for individual heating, cooling and electricity production. Centrally controlled and grid-connected, these elements of the virtual power plant contribute to meet peaking energy demand in the public electricity grid and act as a virtual power plant." Cogen Europe: www.cogen.org/projects/vfcpp.htm

Virtual Power Plant (Energy Efficiency): "With the projected market for commercial and industrial lighting fixture replacement in the United States alone at approximately 21,871 Megawatts (MW), the Virtual Power Plant concept employing robust energy efficient initiatives could deliver over 100,000 Megawatts of displaced capacity to U.S. economy." www.orionlighting.com/news/articles/2003/June/virtual_power_plant.htm

Virtual Power Plant (Excess Capacity of Existing Plants): Calpine Announces Sale of Up to 300 Megawatts To Brazos Electric Power Cooperative. Calpine's "virtual power plant" gives Brazos Electric maximum flexibility and system reliability, backed by Calpine's 6,000-megawatt system of power plants located throughout the ERCOT market. www.corporate-ir.net/ireye/ir_site.zhtml?ticker=CPN&script=411&layout=-6&item_id=410681

Virtual Power Plant (DG): Small-scale power systems, installed on multiple commercial and industrial customers' sites, can function as a "virtual power plant" under utility control. Utilities can dispatch these distributed systems to enhance local grid stability, meet peak demands, capitalize on favorable market prices, and more. www.caterpillar.com

Virtual Power Plant (Bundled DG): A virtual power plant created by connecting geographically diverse DG to the NYISO. Electrotek has developed and is testing a control and communications system that aggregates distributed resources to maximize benefits for all parties involved and makes DG immediately dispatchable from a single control point. This provides spinning reserve to the grid in peak situations and uninterruptible power supply to customers. www.nrel.gov/docs/fy04osti/35046.pdf

Virtual Power Plant (Hybrid Power Generators): A Virtual Power Distribution System can be realized using several Hybrid Power Generators remotely controlled through PSTN or Wireless Phone Service (GSM or GPRS). A network of power management nodes capable of supplying electric power anywhere in the territory can be virtually connected to a central management centre from which energy billing, production monitoring and remote maintenance can be assured. ... Remote control allows also to manage a network of micro power plants exactly as a traditional distribution system, formed by several interconnected substations supplied by a virtual large central power plant. Such virtual power plant is represented by the control operation center from which it will be possible in the near future to sell energy to every single user, also through an internet portal.

www.elettronicasanterno.it/system/files/documents/
materiale/EuroSun02_ES_ENEA_rev_def.pdf

LOL-SOP-IR-50: Does Maui County support wheeling?

Information Requests (IRs) for The Gas Company

LOL-SOP-IR-51: (a) Should small DG that serve two or more contiguous properties be permitted? (b) Would DG that is grid-connected, and thus can provide emergency power to the grid, have higher value and/or benefit to the electric utility?

LOL-SOP-IR-52: (a) What is the usage level, and the capacity level, of The Gas Company's SNG (a) generator(s); (b) pipeline networks; and (c) truck deliveries? Please include answers for each island? (b) Without adding capacity to the generation systems or transmission systems, how much electrical power can be produced (MW) and, how much heat can be produced (measured in the amount of electrical MW that would be needed by a non-CHP generator to produce that heat)?

LOL-SOP-IR-53: Does The Gas Company support wheeling?

LOL-SOP-IR-54: What is The Gas Company guesstimate regarding the heat load of each island that could be provided by through CHP.

Information Requests (IRs) for MECO

LOL-SOP-IR-55: In the MECO IRP-2 Evaluation Report, dated April 7, 2004, MECO stated that: (a) "Distributed generation (DG) is the application of small generators, typically

ranging in capacity from a dozen to several thousand kW" (MECO-IRP, pg. 20). What is the lower and upper limit for the size of DG? (b) Please provide a copy of all documents which support the following statement: "DG may provide additional reliability to a customer whose operation is willing to pay for a higher level of reliability for certain loads that cannot be economically achieved through central station generation and T&D systems." (MECO-IRP, pg. 21) [emphasis added]. (c) What level of customer reliability requires on-site generation? (d) "Another potential benefit of DG is that its small size, modularity, and location at or near an end use site provides flexibility and choice that a traditional utility system may not be able to offer." (MECO-IRP, pg. 21) Does MECO believe that DG can be right-sized and planned with greater time-certainty than central generation?

Information Requests (IRs) for HECO, MECO, HELCO

LOL-SOP-IR-56: Please provide all studies, reports and analysis that the Companies and its subcontractors conducted in the past 10 years with regard to the present transmission lines, subtransmission lines and substations, short-range and long-range transmission planning, consideration of new and/or modified transmission and subtransmission lines and substations, operation and maintenance of these infrastructures (including live-line analysis), for MECO, HECO and HELCO grids. Please include all studies, reports, and analysis on how the grid might look in the future.

LOL-SOP-IR-57: Distribution systems can be radial or network. (a) Are networks more reliable? (b) Which areas of the state have the network distribution system? (c) Which areas of the state have a distribution system that is a network (as opposed to radial network)?

LOL-SOP-IR-58: Transmission Lines have a maximum capacity (throughput), an average load (percent of capacity), and reliability metrics (how often does the line go down, how long is the average unscheduled down-time, what is the potential impact). Please provide a detailed analysis and all documents for each transmission system (HECO/MECO/HELCO) and analysis of subtransmission lines in the Downtown Honolulu and Waikiki areas.

LOL-SOP-IR-59: Please provide all studies, reports, and/or analysis that the Companies and/or its subcontractors conducted in the past 10 years with regard to central station generation, distributed generation, renewable energy generation, penetration levels, energy storage, etc.

LOL-SOP-IR-60: (a) Please list the efficiency and cost per kilowatt hour for each utility generator. (b) Please list the efficiency and cost per kilowatt hour for the Honolulu Power Plant.

LOL-SOP-IR-61: (a) A Virtual Power Plant (VPP) refers to a network of grid-connected, utility-controlled, economic-dispatchable, peak load providing generators. (a) To what level of expertise have the Companies evaluated the VPP option? (b) What is the nameplate capacity and actual capacity of backup generators that exist in each utility service area? (c) "Hotel operators, for instance, generally do not want to own, operate and maintain power systems." (HECO-DG, pg. 11) What percentage of hotel owners do not own, operate and maintain back up generators? (d) How is the Companies CHP Application similar and different from the Iniki Plan proposed by Maui County.

LOL-SOP-IR-62: What analysis has the Company conducted regarding areas or regions where DG might be feasible but where synthetic natural gas is (1) unavailable by pipeline; and (2) unavailable by other delivery systems

LOL-SOP-IR-63: According to HECO: "the companies have made a limited number of proposals to customers to install and operate utility owned CHP systems at customers' sites, and have executed a number of letters of intent and memoranda of understanding to conduct preliminary engineering for potential CHP projects." (HECO-DG pg. 10): The Companies have (a) how many salespeople working on contacting entities re CHP; (b) how many customers have been contacted: (c) how many have expressed interest; and (d) how many have been given some type of discount or incentive as a result thereof? (e) Please provide a sample copy of a letter of intent and a memoranda of understanding.

LOL-SOP-IR-64: "A number of the initial units are no longer operable and/or have been replaced." (HECO-DG, pg. 16) Who made these units?

LOL-SOP-IR-65: If customers decrease their load, does it matter whether it was reduced through conservation, energy efficiency, small DG, large DG, small CHP, 0r large CHP?

LOL-SOP-IR-66: Can DG be used for customers usage except for the peak periods, when the electricity from the DG facility is fed into the grid

LOL-SOP-IR-67: (a) Can wind provide non-time-sensitive power to specific customers (for example, utility will sell electricity for water pumping to Parker Ranch when

available)? (b) Would it be feasible for the utilities to sell green as-available electricity (that would exactly offset wind-created electricity fed into the grid)?

LOL-SOP-IR-68: (a) What is the length of time needed to negotiate each interconnection agreement and each power purchase contract between the utility and HESS. (b) Please explain any time differentials in signing ICAs and PPAs with the utility regarding Hess's non-pre-packaged and pre-packaged CHP systems. (c) Please provide any studies, analysis and documents that would indicate that standardized interconnection agreements and standardized power purchase agreements lead to savings in time and/or money.

LOL-SOP-IR-69: Please list all studies, reports, and/or analysis that the Companies and subcontractors conducted in the past 10 years with regard to the following statement: "Basic economics is the single major impediment to the wide-spread deployment of DG in Hawaii." (HECO/2004 pg. 5)

LOL-SOP-IR-70: In Hawaii, fully allocated embedded cost-of-service studies are the starting point for the allocation of revenue requirements among rate classes." (HECO/2004, pg. 31). (a) Please provide a copy of the Companies most recent cost-of-service study and the most recent class load study; (b) Please list the unbundled costs of providing electricity for each component (generation, spinning reserve, T&D, T&D losses, metering, etc.); and (c) Please list all cross-subsidies that exist between or within customer classes.

LOL-SOP-IR-71: (a) Should comparisons of alternative technologies include the multiplier effect job creation and economic growth, fuel volatility and security (b) For each of the following, please explain how the Companies analyses, incorporates

and/or utilizes it in evaluating alternative energy plans and/or DG analysis: (1) job creation; (2) economic growth; (3) the economic multiplier effect; (4) balance of trade issues; (5) export expansion; (6) import substitution; (7) foreign investment; (8) leakage? (c) Does "public interest" refer to "ratepayer interest" and/or "stockholder interest" or to some broader interest which is also concerned with jobs, economic prosperity and quality of life issues. (d) Should comparisons of alternative technologies include the multiplier effect job creation, economic growth, fuel volatility and security?

LOL-SOP-IR-72: Are construction and operation costs similar for utilities and non-utilities?

LOL-SOP-IR-73: Should a DG system be allowed to provide electricity and/or heat to two adjacent properties?

LOL-SOP-IR-74: How do the Companies believe that positive externalities associated with renewable energy DG (hedging against fossil fuel price volatility; hedging against fossil fuel price spikes; reduced environmental compliance risk; security risks) should be accounted for?

LOL-SOP-IR-75: (a) Please list all studies, reports, and/or analysis that the Companies and/or its subcontractors commissioned and/or completed in the past 10 years with regard to the following statement: "In order for DG to be accepted in Hawaii, it must be highly efficient (such as CHP systems) and the application must be large enough for a reasonable economy of scale." (HECO/2004 pg. 6) (b) Please provide all documents, surveys, and community meeting minutes since January 2000 with regard to aesthetic impacts associated with any proposed windfarm at Kahe or Kahuku. (c) "Impacts can

be negative if the distributed generation installation itself is visually obtrusive, such as may be the case with wind turbines, photovoltaic arrays, or exhaust stacks?" (HECO/2004, pg. 25) Please list all studies, reports, and/or analysis that the Companies and its subcontractors completed in the past 10 years with regard to visual impact analysis specific to Hawaii and limited to actual proposals.

LOL-SOP-IR-76: (a) Do the Companies use any probability analysis, confidendence interval estimates, correlation analysis, regression modeling or other statistical analysis? (b) Does this include analysis of the need for standby charges, spinning reserves, transmission line redundancy, distribution line redundancy, and multiple simultaneous DG equipment failures? (c) Please explain any type of probability analysis the Companies are aware of to evaluate the likelihood of multiple DG systems failing simultaneously; (d) Contingency planning calls for the utility to be able to have one generator down for service while a second one fails. Contingency planning calls for the utility to be able to have one transmission line to be down when another one fails. Should the utility have a higher standard for distributed generation, that is, the utility must plan for all generators to fail simultaneously? (e) Should utility upgrades occur where (1) the load is higher; (2) where the is a history of failures; or (3) where there is a higher probability of future failure. (f) Should all customers pay to upgrade the T&D grid for the benefit of those customers requiring higher levels of reliability?

LOL-SOP-IR-77: How does the Companies simulation models account for micro- and mini- on-site generators within an IRP Framework?

LOL-SOP-IR-78: What percentage of outages (number, duration) are caused by problems associated with generation, transmission, distribution, transmission substation, distribution substation, customer line feed, etc.?

LOL-SOP-IR-79: (a) What is the percentage of the load for each transmission sector? (b) What is the government load for each of these sectors? (c) At what time does each transmission sector peak? (d) Can the peak load from neighboring sectors be added together to determine the peak load for both sectors combined?

LOL-SOP-IR-80: (a) Does the Supply Side Resources within the IRP Framework refer to only central station generators (CG); (b) Are DG generators excluded from IRP analysis? (c) Has the PUC ruled on whether CG and DG must be treated similarly or differently within the IRP Framework?

LOL-SOP-IR-81: How does the Companies CHP Application and DG Statement of Position comply with the following: HAR 6-74-7 (a): A cogeneration facility or small power production facility shall not be owned by a person engaged in the generation or sale of electric power.

LOL-SOP-IR-82: (a) Please provide a list of all studies, reports and analysis that the Companies and its subcontractors conducted in the past 10 years with regard to DG and CHP (b) Please provide a citation or source for all documents listed in section a. (c) Please provide a copy of all documents in section a which are not in the public record. (d) Please provide a copy of the study on DG conducted by the California based consultant conducted by the utilities with support from EPRI.

May 26, 2004

_____

Henry Q Curtis
Executive Director

Certificate of Service

I hereby certify that I have this date served a copy of the foregoing Information Requests by Life of the Land, Docket Number 03-0371, upon the following parties. Life of the Land hand-delivered the Original plus 8 copies to the PUC; 3 copies to the Consumer Advocate. Life of the Land mailed 2 copies to Alan M. Oshima, Esq. (KIUC); and 1 copy to each of the following parties: Thomas W. Williams, Jr. Esq. (HECO); William Bonnett (HECO); Patsy H. Nanbu (HECO); Alton Miyamoto (KIUC); George T. Aoki, Esq. (TGC); Steven P. Golden (TGC); Gail S. Gilman (TGC); Brian Moto (Maui); Cindy Y. Young (Maui); Kalvin K. Kobayashi (Maui); Warren S. Bollmeier II (HREA); John Crouch (HREA); Rick Reed (HREA); Sandra-Ann Y. H. Wong, Esq. (HESS); Christopher S. Colman (HESS); Michael de'Marci (HESS); Thomas C. Gorak (JCI); Gordon Bull (JCM); Jim Reisch (PMI); Lani D. H. Nakazawa, Esq. (Kauai); Glenn Sato (Kauai); John W. K. Chang, Esq. (DAG); Maurice H. Kaya, P.E. (DBEDT); Steven Alber (DBEDT).

Public Utilities Commission
465 S King St. Suite 103
Honolulu, HI 96813

Division of Consumer Advocacy
335 Merchant Street, Room 326
Honolulu, HI 96813

Thomas W. Williams, Jr. Esq.
Peter Y. Kikuta, Esq.
Goodsill, Anderson, Quinn & Stifel
1099 Alakea St., Alii Place, Suite 1800
Honolulu, HI 96813

George T. Aoki, Esq.
The Gas Company
Topa Fort St. Financial Tower
745 Fort St., 18th Floor
Honolulu, HI 96813

William Bonnett, Vice President
Hawaiian Electric Company
P.O. Box 2750
Honolulu, HI 96840-0001

Patsy H. Nanbu
Hawaiian Electric Company
P.O. Box 2750
Honolulu, HI 96840-0001

Alan M. Oshima, Esq.
Kent D. Morihara, Esq.
841 Bishop St., Suite 400
Honolulu, HI 96813

Alton Miyamoto, Pres. & CEO
Kauai Island Utility Cooperative
4463 Pahe`e Street
Lihue, HI 96766

Steven P. Golden
The Gas Company
Topa Fort St. Financial Tower
745 Fort St., 18th Floor
Honolulu, HI 96813

Gail S. Gilman
The Gas Company
Topa Fort St. Financial Tower
745 Fort St., 18th Floor
Honolulu, HI 96813

Brian Moto, Corporation Counsel
County of Maui, Dept. of Corp. Counsel
200 S. High St.
Wailuku, HI 96793

Cindy Y. Young, Deputy Corp. Counsel
County of Maui, Dept. of Corp. Counsel
200 S. High St.
Wailuku, HI 96793

Kalvin K. Kobayashi, Energy Coordinator
County of Maui, Dept. of Management
200 S. High St.
Wailuku, HI 96793

Warren S. Bollmeier II. President
Hawaii Renewable Energy Alliance
46-040 Konane Place, #3816
Kaneohe, HI 96744

John Crouch
Box 38-4276
Waikoloa, HI 96738

Sandra-Ann Y. H. Wong, Esq.
1050 Bishop St., #514
Honolulu, HI 96813

Rick Reed
Inter Island Solar Supply
761 Ahua St.
Honolulu, HI 96819

Michael de'Marci
Hess Microgen
4101 Halburton Rd
Raleigh, NC 27614

John W. K. Chang, Esq.
Deputy Attorney General
Department of the Attorney General
State of Hawaii
425 Queen Street
Honolulu, HI 96813

Lani D. H. Nakazawa, Esq.
Office of the County Attorney
County of Kauai
4444 Rice St., Suite 220
Lihue, HI 96766

Maurice H. Kaya, P.E.
Chief Technology Officer
DBEDT-Strategic Industries Division
235 S. Beretania St., Room 502
Honolulu, HI 96813

Gordon Bull, Branch Manager
3526 Breakwater Ct.
Hayward, CA 94545

Christopher S. Colman, Dep. General Counsel
Amerada Hess Corporation
One Hess Plaza
Woodbridge, N.J. 07095

Thomas C. Gorak
Gorak & Bay, LLC
76-6326 Kaheiau St.
Kailua-Kona, HI 96740-3218

Jim Reisch, VP & General Mgr-Engine Div.
Pacific Machinery, Inc.
94-025 Farrington Highway
Waipahu, HI 96797

Glenn Sato, Energy Coordinator
c/o Office of the County Attorney
County of Kauai
4444 Rice St., Suite 220
Lihue, HI 96766

Steven Alber, Energy Analyst
DBEDT-Strategic Industries Division
235 S. Beretania St., Room 502
Honolulu, HI 96813

Furthermore, one electronic copy (PDF Format) was sent to each email address listed below.

amiyamot@kiuc.coop
ann.y.tonokawa@dcca.hawaii.gov
amo@ocfc.com
bill.bonnet@heco.com
brian.moto@co.maui.hi.us
ccolman@hess.com
cheryl.s.kikuta@dcca.hawaii.gov
cindy.young@co.maui.hi.us
demarci@earthlink.net
gaoki@hawaiiangas.com
ggilman@hawaiiangas.com
glenn@kauaioed.org
gorakandbay@hawaii.rr.com
gordon.bull@jcm.com
hydrogen@hawaii.com
john.w.chang@hawaii.gov
jon.s.itomura@dcca.hawaii.gov
kal.kobayashi@co.maui.hi.us
lnakazawa@kauaigovt.com
lfs@ocfc.com
mkaya@dbedt.hawaii.gov
pkikuta@goodsill.com
patsy.nanbu@heco.com
reischj@pacmach.com
rreed@sunearthinc.com
salber@dbedt.hawaii.gov
sawonglaw@hawaii.rr.com
sgolden@hawaiiangas.com
twilliams@goodsill.com
wsb@lava.net